



VOLUME 62 NUMBER 39 SEPTEMBER 22, 1981  
TRANSACTIONS, AMERICAN GEOPHYSICAL UNION

**EOS**

EOS, TRANSACTIONS, AMERICAN GEOPHYSICAL UNION

VOL. B2, NO. 3B, PAGES 673-680

SEPTEMBER 22, 1981

## Particles and Fields— Magnetosphere

5710 ELECTRIC FIELD  
AND THERMAL INVESTIGATION AT EARTH'S IONOSPHERE AND  
MAGNETOSPHERE IN THE 10-100 KM ALTITUDE REGION IN AURORAL ELECTRO-

MAGNETOSPHERE

J. R. Parker, C. J. Stoenner, Jr., P. V. Larson,  
S. L. Smith, C. W. Carlson, D. R. Williams, and  
J. A. McFadden, University of Texas, Austin, TX 78712

A relationship between the ion and thermal acceleration and the electric field in the auroral magnetosphere has been found.

This relationship, however, is not

completely understood because data by

others are available only for the

auroral plasma distribution function.

It is not a simple inverted observed by the

authors. The study reported in this

paper has extended the previous studies to include those studies over the range from 10 to

and a wide range of latitudes and local times during both day and night.

Our results show that there is a clear relationship between the ion and thermal acceleration

processes which are not well understood.

We have performed a detailed

analytical approximation to the electron energy flux

with the assumption that the data was the

same day/night as the observations.

In addition, analyses of individual spectra at small and large pitch angles through well

defined magnetic structures suggest that the

activity of the interplanetary dip minimizes

the range of the ion acceleration.

Investigations are

now being made to understand the

relationship between solar wind and

magnetosphere.

CONTRIBUTION FROM THE SOVIET WIND PARANOV AND

AMERICAN ALICE/THE MAGNETIC FIELD AND

DR. L. Callister (Inst. of Physics & Astronomy,

U.S. of. Iowa, Iowa City, Iowa 52242) and

"The relationship between solar wind properties

and the intensity of aurora in the nightside

auroral region, as indicated by the intensity of

fluorescence, is investigated.

Analyses of the variation of magnetic

field and with periods related to the

intensity of aurora in the nightside

auroral region, as indicated by the intensity of

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## Physical Oceanographer

\$A24,951-\$A33,616 pa  
CSIRO Marine Laboratories  
Division of Oceanography  
Sydney NSW, Australia

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7400 employees—2500 of whom are research and professional scientists—located in divisions and sections throughout Australia.

**GENERAL:** In March 1981, the CSIRO Division of Fisheries and Oceanography was formally separated into a Division of Fisheries Research and a Division of Oceanography. These divisions collectively form the CSIRO Marine Laboratories, and are Australia's principal marine laboratories, employing about 200 scientists and support staff. The main laboratory is in Sydney, and there are smaller laboratories in Brisbane and Perth.

Depending on Parliamentary approval, the Sydney activities will be transferred to new laboratories to be constructed on a deep waterfront site in Hobart, Tasmania. Appointees must be prepared to transfer to Hobart at any time after December 1982. The Australian Government has also agreed to the acquisition by CSIRO of a modern oceanographic ship to replace the presently chartered "Sprightly."

**DUTIES:** To be responsible for establishing a receiving station for High Resolution Picture Transmission data from the US NOAA series of satellites to supply data to various CSIRO Divisions and to outside users. The appointee will undertake oceanographic research using these data and advise CSIRO on further applications of satellite remote sensing to oceanography.

**QUALIFICATIONS:** A Ph.D. in physics or equivalent qualification with substantial research experience in physical oceanography or closely related geophysical fields. Experience in electronics and computer data reduction, the use and analysis of satellite imagery for oceanographic studies, and the research programs of NASA would be an advantage. The ability to work at sea would also be an advantage.

**TENURE:** Indefinite with superannuation.

**APPLICATIONS:** In writing, quoting reference A1459, giving full personal particulars including details of qualifications and experience, copy of academic transcript and the names of at least two professional referees should reach:

The Chief  
Division of Oceanography  
CSIRO  
P.O. Box 21  
Cronulla NSW 2230  
AUSTRALIA  
DEADLINE: October 12, 1981.

CSIRO

## Physical Oceanographers (2 positions)

\$A19,662-\$A28,564 pa  
CSIRO Marine Laboratories  
Division of Oceanography  
Sydney NSW, Australia

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The interest of the Division in physical oceanography include continental shelf dynamics, mixed layer and upwelling dynamics, air-sea interaction, ocean circulation and boundary currents, the interpretation and application of satellite data, numerical modelling and geophysical fluid dynamics.

**DUTIES:** The appointees will initiate and conduct research within these fields and in relation to existing or future programs. On occasions, they may be expected to participate in or lead research vessel cruises.

**QUALIFICATIONS:** Successful applicants would normally hold a Ph.D. in physical oceanography, geophysical fluid dynamics or some other relevant discipline and should be able to demonstrate substantial research aptitude and achievement commensurate with their experience.

**TENURE:** Fixed term appointments of 3–5 years. Superannuation benefits available.

**APPLICATIONS:** In writing, quoting reference A1576/1644, giving full personal particulars including details of qualifications and experience, copy of academic transcript and the names of at least two professional referees should reach:

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CSIRO  
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CSIRO

## Applications are invited for a newly created CHAIR IN GEODYNAMICS AND TECTONICS

University of Uppsala, Sweden

Closing date: October 30, 1981.

It is expected that the applicants are competent in essential parts of the research field, which comprises the physical processes involved in the dynamic evolution of the earth's crust and mantle. Structural geology, the analysis of deformation processes and the study of rheological properties of rocks are important components of this field of research. Applications of experimental and theoretical models are of paramount significance for the interpretation of complex geological structures.

Laboratory facilities for experimental modelling are well developed at the department.

Besides research the professorship involves sponsoring graduate students and giving advanced courses in his field.

Current starting salary: 140 000 Sw. Kr. per year.

Applications, including four copies of curriculum vitae and published papers (as well as unpublished manuscripts), should be addressed to:

The Swedish Government  
Registrar  
University of Uppsala  
Box 256, S-75105  
Uppsala, Sweden.

## AIR FORCE GEOPHYSICS LABORATORY CHIEF SCIENTIST

Air Force Geophysics Laboratory invites applications for the position of chief scientist located at Hanscom Air Force Base, Massachusetts. The Laboratory is responsible for Air Force research and development in atmospheric physics, solar-terrestrial interactions, ionospheric and stratospheric phenomena, aeronomy, meteorology and weather phenomena, geodesy, gravimetry, seismology and related technologies.

The chief scientist serves as an interface between the scientific researchers of the Laboratory and the outside professional technical community. He recommends promising areas for new research and attempts to enhance the professional stature and reputation of the organization and its scientific output of publications and technical reports.

A candidate should have a record of distinguished achievement in geophysics or atmospheric physics as a research scientist. This position is Air Force Senior Executive Service with a salary range of \$52,247 to \$57,673, subject to current \$50,112 ceiling.

For an application package, call collect:

Mr. Robert Ellerin, (617) 861-2896  
or  
Mr. Joe Solivan (617) 861-4581.

To be considered, applications must be returned by October 30, 1981.

Equal Employment Opportunity Employer.

**Director, Office of Programs and International Affairs.** The Office of Research and Development, National Oceanic and Atmospheric Administration (NOAA), has announced the vacancy of Director, Office of Programs and International Activities, located in Rockville, Maryland. The Office of Research and Development is responsible for administering an integrated program of research, technology and advanced engineering development and transfer relating to the oceans, the Great Lakes, the U.S. coastal waters, the lower and upper atmosphere, and the solar and terrestrial environment to increase understanding of the environment and human impact thereon, and thus provide the scientific basis for improved services. The Director, Office of Programs and International Activities, oversees the coordinated development of policy, programs and budgets, and international activities within the Office of the Assistant Administrator for Research and Development. This is an exciting and challenging opportunity for an individual with demonstrated knowledge of (1) oceanographic, meteorological, environmental, physical and engineering sciences (including at least 24 semester hours in physical science at the college level or above), or (2) program analysis techniques and methods involving broad experience in scientific and technological programs related to the oceans or the atmosphere. A knowledge of U.S. policies on science and international multilateral and bilateral relations is desirable.

**SALARY:** This position will be filled under the Senior Executive Service (SES). Salary could range from \$47,869 to \$50,112.50 per annum. **APPLICATION:** Interested persons should send a US Standard Form 171, Personnel Qualifications Statement by October 9, 1981, to Mrs. Susan Custer, Personnel Management Specialist, Office of Personnel, MB/PER11, NOAA, 6001 Executive Boulevard, Rockville, Maryland 20852.

The Department of Commerce, National Oceanic and Atmospheric Administration is an equal opportunity employer.

**Position in Reflection Seismology/Rice University, Houston, Texas.** The Department of Geology plans to expand its geophysical program. Emphasis will be on reflection seismology. At this time applications are for the first of two open faculty positions. The successful applicant will help in the search for and selection of the second faculty member.

Your main responsibility will be to lead our department into the era of modern reflection seismology. Your main teaching and research interests should be in the acquisition and processing of reflection seismic data. You should also help in developing rigorous undergraduate and graduate courses, which are supported by the traditional strength of the Math Sciences, Physics, and Electrical Engineering Departments at Rice. Enthusiasm is not with underrate some joint projects with our geologists is essential.

Our plans are to acquire a computer system configured for high quality data processing. Substantial money for this facility is already in hand. Close cooperation with the oil and geophysical industry in Houston, including a reasonable amount of consulting, is encouraged. Salary will be competitive with qualifications and experience.

Please send your curriculum vitae, a summary of experience in seismic processing, a statement of research interests, and names of three or more references to Dr. A. W. Bally, Chairman, Department of Geology, Rice University, P.O. Box 1902, Houston, Texas 77001. Application deadline—October 1, 1981.

Rice is an equal opportunity employer.

**Director, Geodetic Survey, NOAA.** The National Oceanic and Atmospheric Administration (NOAA) announces a Senior Executive Service vacancy for the position of Director, Geodetic Research and Development Laboratory (GRDL) in the National Geodetic Survey, a component of the National Ocean Survey. The duty location is Rockville, Maryland. The salary range is \$47,869-\$50,112.50 per annum. Duties include providing technical and administrative supervision over employees and activities of GRDL; advising officials on the state of scientific knowledge in geodesy and making recommendations for research and development; exercising scientific and technical knowledge of contributing publications to professional journals and making presentations at national and international meetings; and advising and consulting scientists and engineers in improvement of geodesy and related fields. Experience in management of scientific programs, geodesy, and solid earth sciences is required. Apply to: NOAA/NESDIS-8001 Executive Boulevard, Rockville, Maryland 20852. Attn: MB/PER11.

NOAA is an equal opportunity employer.

**Seismologist.** The State University of New York at Binghamton has a vacancy for a seismologist at assistant professor level. Ph.D. degree holders with research interest in exploration seismology or earthquake seismology with solid theoretical background are welcome to apply.

The successful candidate is expected to teach courses in applied geophysics, time series analysis, wave propagation, etc. Ph.D. with 5 to 10 years of teaching, research and/or industrial experience is appropriate for the position. Salary negotiable and competitive with academic institutions. Position available September 1, 1982.

Please send resume and names of three references to Chairman, Oceans/Geophysics Search Committee, Department of Geological Sciences, State University of New York at Binghamton, New York 13901. Deadline for applications November 30, 1981. The University of New York is an affirmative action/equal opportunity employer.

We particularly encourage applications from women and minorities.

**Geophysicist.** The Physics Department of the University of New Orleans invites applications for tenure track positions available January 1982 or August 1982. Rank and salary are to be commensurate with experience and training. Candidates with background in geophysics, acoustics or computational physics are especially encouraged to apply. The UND Department of Earth Sciences and Physics are jointly developing programs and courses to respond to the demand for graduates in geophysics in the local metropolitan area and in the south central U.S.

The successful applicant can expect collaborative research support from faculty active in signal processing and enhancement techniques and in inverse scattering methods. Other areas of departmental research involve atomic, molecular, and solid state physics, magnetooptics, geophysics, hydrodynamics and computational physics. Applicants should send a curriculum vitae to Professor J. Murphy, Search Committee, Physics Department, University of New Orleans, New Orleans, LA 70148.

The University is an equal opportunity/affirmative action employer.

We particularly encourage applications from women and minorities.

**Virginia Polytechnic Institute and State University-Bardner Research Associate.** Interesting and abundant research and publishing opportunities exist for a research scientist in the Virginia Tech VASTORSEIS system, VAX 11/780 computer. Must have experience in theory and application of reflection seismology, and be interested in the application of reflected seismology to the solution of geological problems.

Send resume to: Dr. O. R. Wones, Department of Geological Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0796.

The University is an equal opportunity/affirmative action employer.

We particularly encourage applications from women and minorities.

**Graduate Research Assistantships in Physical Oceanography.** Opportunities for graduate study with research assistantships available for students interested in M.S. or Ph.D. programs. A summer program with stipend is open to college juniors. Write: Douglas Caldwell, School of Oceanography, Oregon State University, Corvallis, OR 97331.

**Tectonophysics Assistantships.** Center for

Tectonophysics, Texas A & M University,

has assistantships available for Ph.D. students in

geophysics and geodynamics.

These half-time appointments currently pay \$3500 per month for beginning graduate stu-

dents to \$675 per month for advanced Ph.D. candidates and include waiver of the out-of-state tuition.

Write: Dr. M. Friedman, Center for Tectonophysics,

Texas A & M University, College Station, TX 77843.

We particularly encourage applications from women and minorities.

**Petroleum Geologist Northern Illinois University.** Applications are invited for a tenure track position in igneous or metamorphic petrology at the assistant or associate professor level beginning either January 1982 or August 1982. A Ph.D. degree is required and preference may be given to scientists with an established record of research. The Department has an automated electron microscope, mass spectrometer and laboratory for stable isotope studies, full range of right-angle and high pressure apparatus, including furnaces for controlled experiments, as well as X-ray equipment. The successful applicant will be expected to participate in both the undergraduate teaching and graduate studies programs, as well as actively engage in research. Rank and salary are open but will be commensurate with qualifications.

Purdue University is a land grant, state-supported institution committed to academic excellence, and is an equal opportunity/affirmative action employer.

**Postdoctoral Awards in Ocean Science and Engineering.** Woods Hole Oceanographic Institution invites applications for two postdoctoral scholar awards from new and recent graduates in fields of biology, chemistry, engineering, geology, geophysics, mathematics, meteorology, and physics, as well as oceanography. Recipients of awards are selected on a competitive basis, with primary emphasis placed on research promise.

Fellowships offered by the Lamont-Doherty Geological Observatory of Columbia University invites scientists interested in any field of the earth sciences to apply for the following fellowships: two postdoctoral fellowships, each awarded for a period of one year (extendable to two years in special instances) beginning in September 1982 with a stipend of \$22,500 per annum. Completed applications are due by November 1, 1981.

An equal opportunity/affirmative action employer.

**Faculty Positions.** Arizona State University, Department of Geology. Applications are invited for two tenure-track faculty positions, one at the assistant professor level and one at the associate level, beginning in August of 1982. One of these positions requires a candidate with interests in applying modern solid state science to geological phenomena. The selected candidate should develop an active research program and may use the extensive opportunities offered by the Facility for High Resolution Electron Microscopy at ASU. Teaching duties will include undergraduate mineralogy. Candidates for the other position should complement and extend existing strengths in the department. Possible areas include low temperature geochemistry, heavy isotope geochemistry, solid earth geophysics, tectonophysics, and related fields. The ability to use modern techniques in both field and laboratory studies and to integrate diverse approaches is highly desirable. Please send a detailed statement of research and teaching interests and a resume with names of four references to: Dr. Jonathan H. Gray, Search Committee Chairman, Department of Geology, Northern Illinois University, DeKalb, Illinois, 60115.

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**EARTH SCIENCES**

The Lamont-Doherty Geological

